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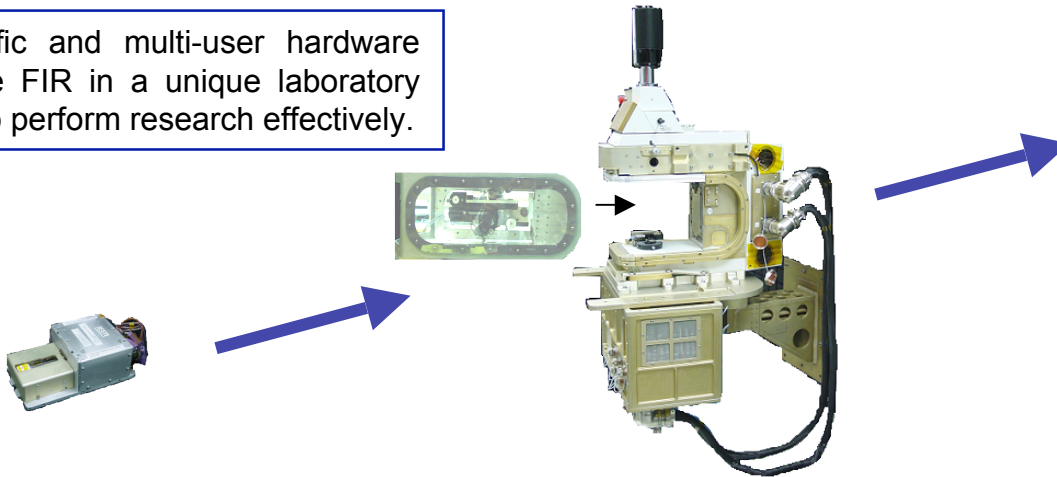
ISS Fluids and Combustion Facility (FCF)

Payload Specific Hardware FIR First Increment

The FCF FIR includes support subsystems and laboratory style diagnostics common to the specific researchers and supplements the laboratory with unique science hardware developed for each Payload.

Light Microscopy Module

Payload specific and multi-user hardware customizes the FIR in a unique laboratory configuration to perform research effectively.



Payload Specific Hardware

- Sample Cell with universal Sample Tray
- Specific Diagnostics
- Specific Imaging
- Fluid Containment

Multi-Use Payload Apparatus

- Test Specific Module
- Infrastructure that uniquely meets the needs of PI experiments
- Unique Diagnostics
- Specialized Imaging
- Fluid Containment

FCF Fluids Integrated Rack

- Power Supply
- Avionics/Control
- Common Illumination
- PI Integration Optics Bench
- Imaging and Frame Capture
- Diagnostics
- Environmental Control
- Data Processing/Storage
- Light Containment



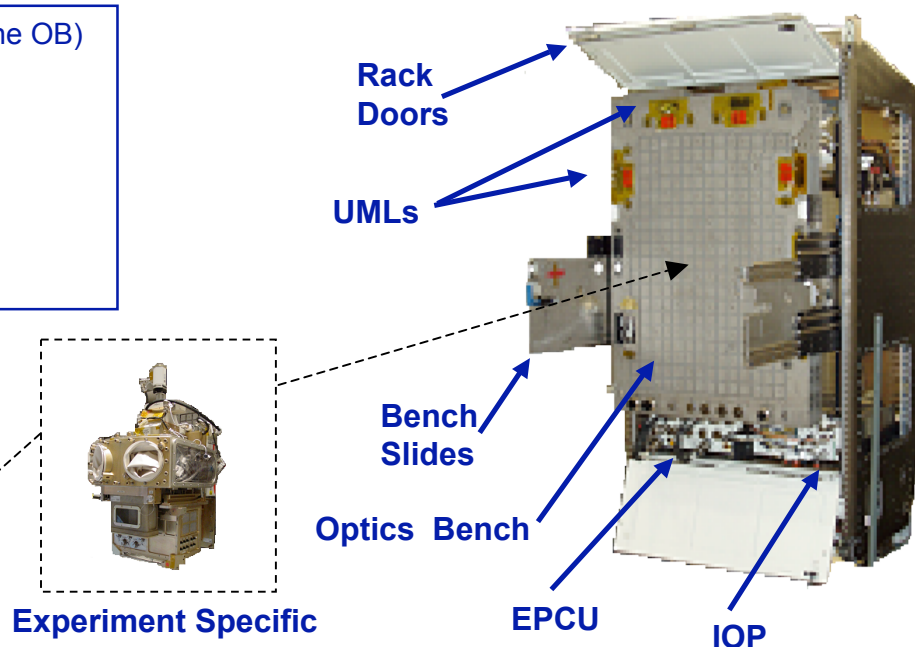
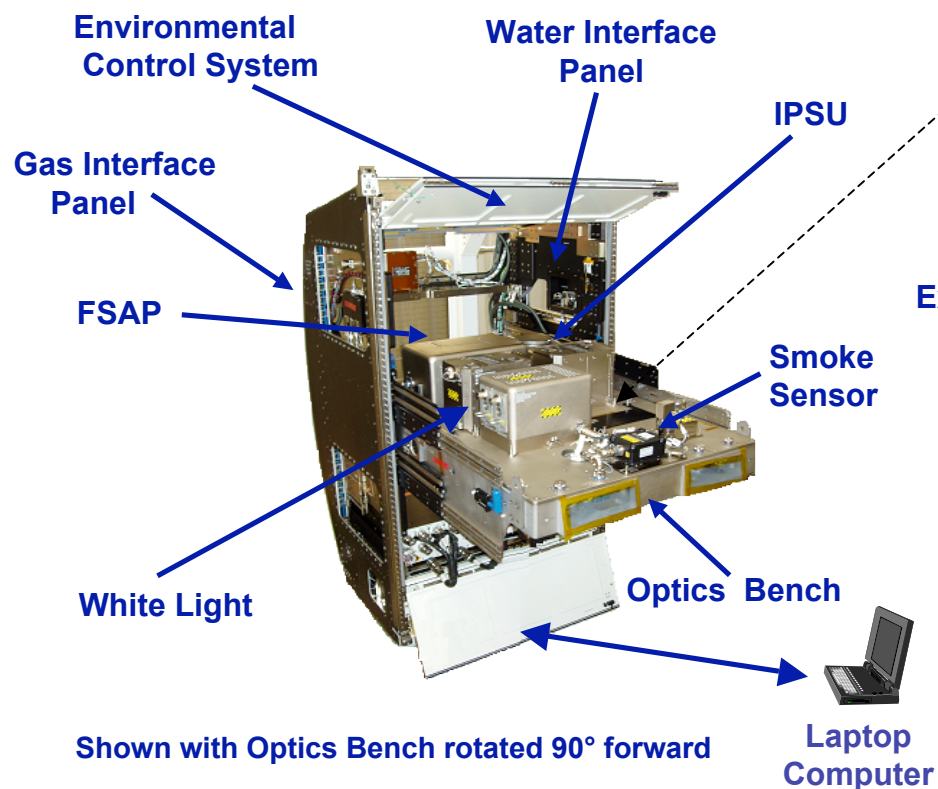


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Fluids Integrated Rack (FIR) Overview

- Volume ~ 0.7 m³ (1100mm x 895mm x 495mm on the front of the OB)
- Mass ~ 300kg depending on FIR be utilized
- Electrical Power Control Unit (EPCU)
 - Nominal 672 W/1600W max at 28Vdc
 - 1450 W at 120Vdc
- Thermal Cooling
 - 3 kW water (MTL)
 - 1300 W air (provided at 20°C to 30°C)



- Video
 - Common Image Processing Unit (C-IPSU) - IEEE 1394 FireWire & Analog Frame Grabber Interfaces for PI provided cameras
 - C-IPSU - Image processing & storage units for real time and post processing of image data
 - Illumination – White Light & 150mW 532nm Nd:YAG LASER*
 - Analog Color Camera*
- Control & Data Acquisition
 - Fluid Science Avionics Package (FSAP) - Standard control and data acquisition interfaces (e.g. analog & digital Inputs/Outputs, motion control, RS-422)
 - 540 GB of Data Storage

* Not on First Flight



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The Fluids Integrated Rack Test Overview



HFIT



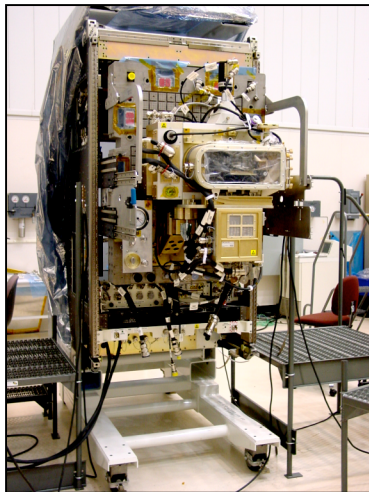
Acoustic Testing



EMI Testing



Off Gas Testing



Integrated Payload Testing



Modal Survey Testing



Integrated Thermal Testing



Mission Sequence Testing